

DEPARTMENT OF TRANSPORTATION**DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 1.28**WELDING INSPECTION REPORT****Resident Engineer:** Siegenthaler, Peter**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-018411**Date Inspected:** 22-Nov-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 630**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1500**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site**CWI Name:** See Below**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** Orthotropic Box Girders**Summary of Items Observed:**

At the start of the shift the Quality Assurance Inspector (QAI) traveled to the project site and observed the following work performed by American Bridge/Fluor Enterprises (AB/F) personnel at the locations noted below:

- A). Field Splice W7/W8
- B). Field Splice W8/W9
- C). Field Splice E8/E9
- D). Pipe Supports

A). Field Splice W7/W8

The QAI observed the Shielded Arc Welding (SMAW) of the weld joint identified as Weld Number (WN) W7-W8-E1. The Complete Joint Penetration (CJP) welding was performed by welding personnel Song Tao Huang, ID-3794 utilizing the WPS ABF-D15-1040B, Rev. 1. The WPS was also used by the QC inspector Bonifacio Daquinag as a reference to monitor the welding and to verify the DC welding parameters which were noted and recorded by the QC as 139 amps. The welding was performed in vertical position (3G) at approximate incline of 22 degrees. The QC inspector also verified the minimum preheat temperature of 60 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius. Later during the shift the QAI observed, at random intervals, the QC inspector monitoring the in process welding, the surface temperatures and verifying the welding parameters. The CJP welding was not completed during this shift. The welding was performed between the Y coordinates identified as of 0 mm-1030 mm. This area was not welded during the automatic FCAW-G process because of limited access to the weld joint due to the submerged arc tractor configuration.

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B). Field Splice W8/W9

The QAI observed the continuous tack/seal welding of the backing bar to the bottom plate field splice identified as WN: W8-W9-D1. The welding was performed by Wai Kitlai ID-2953 utilizing the Flux Cored Arc Welding (FCAW-G) process as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-F3200A Rev. 0. The WPS was also used by the QC inspector, Bonifacio Daquinag, Jr., to monitor the in process welding and verify the welding parameters. The welding parameters were verified and recorded by Mr. Daquinag as follows; 243 amps, 23 volts and a travel speed measured at 310 mm/m. The minimum temperature of 60 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius was also verified and recorded by the QC inspector. The welding performed in the horizontal position (2F) with the work placed so that the weld metal appeared to be deposited on the upper side of the horizontal surface and against the vertical surface.

The QAI also observed the continuous tack/seal welding of the backing bar to the bottom plate field splice identified as WN: W8-W9-D1. The welding was performed by Jin Pei Wang ID-7299 utilizing the Flux Cored Arc Welding (FCAW-G) process as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-F3200A Rev. 0. The WPS was also used by the QC inspector, Bonifacio Daquinag, Jr., to monitor the in process welding and verify the welding parameters. The welding parameters were verified and recorded by Mr. Daquinag as follows; 249 amps, 23.5 volts and a travel speed measured at 325 mm/m. The minimum temperature of 60 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius was also verified and recorded by the QC inspector. The welding performed in the horizontal position (2F) with the work placed so that the weld metal appeared to be deposited on the upper side of the horizontal surface and against the vertical surface.

Later in the shift the QAI observed the continuous tack/seal welding of the backing bar to the deck plate "A" identified as WN: W8-W9-A1 through A3. The welding was performed by Xiao Jian Wan ID-9677 utilizing the Shielded Metal Arc Welding (SMAW) process as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-F1200A Rev. 0. The WPS was also used by the QC inspector, Bonifacio Daquinag, Jr., to monitor the in process welding and verify the welding parameters. The welding parameters were verified and recorded by Mr. Daquinag as 165 amps. The minimum temperature of 60 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius was also verified and recorded by the QC inspector. The welding performed in the horizontal position (2F) with the work placed so that the weld metal appeared to be deposited on the upper side of the horizontal surface and against the vertical surface.

The QAI also observed the continuous tack/seal welding of the backing bar to the deck plate "A" identified as WN: W8-W9-A1 through A3. The welding was performed by Hua Qiang Hwang ID-2930 utilizing the Shielded Metal Arc Welding (SMAW) process as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-F1200A Rev. 0. The WPS was also used by the QC inspector, Bonifacio Daquinag, Jr., to monitor the in process welding and verify the welding parameters. The welding parameters were verified and recorded by Mr. Daquinag as 170 amps. The minimum temperature of 60 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius was also verified and recorded by the QC inspector. The welding performed in the horizontal position (2F) with the work placed so that the weld metal appeared to be deposited on the upper side of the horizontal surface and against the vertical surface.

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C). Field Splice E8/E9

The QAI observed the excavation of the unacceptable discontinuities on the deck plate field splice identified as WN: 8E-9E-A1, repair cycle # 1. The rejectable discontinuities was discovered during the Ultrasonic Testing (UT) performed by the QC technician Tom Pasqualone and appeared to run in the transverse direction of the longitudinal weld. The excavation was performed by welding personnel Wai Kitlai ID-2953 utilizing a high cycle grinder to remove the defects and a rotary file to bring the excavated area into compliance with the Weld Procedure Specification (WPS) ABF-WPS-D15-1001 Repair, Rev. 0. At the conclusion of the excavation the QAI verified the dimensions of the excavations and were recorded as follows; Y=4920 mm, L=135 mm, d=13 mm and Y=5370 mm, L= 130 mm, d=13 mm. No welding was performed during this shift.

D). Pipe Supports

The QAI observed F.W. Spencer personnel continue the layout for the locations on the column embeds for the utility air and utility water pipe support systems. Later in the shift the QAI observed the fillet welding of the pipe supports located at the pier bottom slab which was performed by David Garcia ID-8789 utilizing a 3.2 mm electrode as per the Welding Procedure Specification (WPS) identified as Fillet Murex. The fillet welding was performed in horizontal (2F) position utilizing a 3.2 mm electrode. The QC inspection was performed by Mike Johnson utilizing the WPS to monitor the welding and to verify the amperage. The welding and inspection of the pipe supports was not completed during this shift.

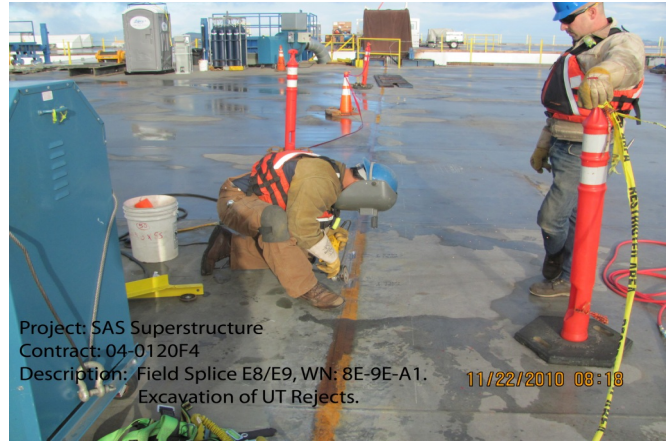
QA Observation and Verification Summary

The QA inspector observed the QC activities and the welding of the field splices utilizing the WPS as noted above, which appeared to be posted at the weld station. The welding parameters and surface temperatures were verified by the QC inspector and utilizing a Fluke 337 clamp meter for the electrical welding parameters and a Fluke 63 IR Thermometer for verifying the preheat and interpass temperatures. The ESAB consumables utilized for the SMAW welding process appeared to comply with the AWS Specification and AWS Classification. The QC inspection, testing and welding performed on this shift appeared to be in general compliance with the contract documents. At random intervals, the QAI verified the QC inspection, testing, welding parameters and the surface temperatures utilizing various inspection equipment and gages which included a Fluke 337 Clamp Meter and Tempilstik Temperature indicators.

The digital photographs on page 4 of this report illustrate the work observed during this scheduled shift.

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Summary of Conversations:

There were general conversations with Quality Control Inspector Bonifacio Daquinag, Jr. at the start of the shift regarding the location of American Bridge/Fluor welding, inspection and N.D.E. testing personnel scheduled for this shift.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mohammad Fatemi (916) 813-3677, who represents the Office of Structural Materials for your project.

Inspected By: Reyes,Danny

Quality Assurance Inspector

Reviewed By: Levell,Bill

QA Reviewer
